CHIEF SCIENTIST OFFICE

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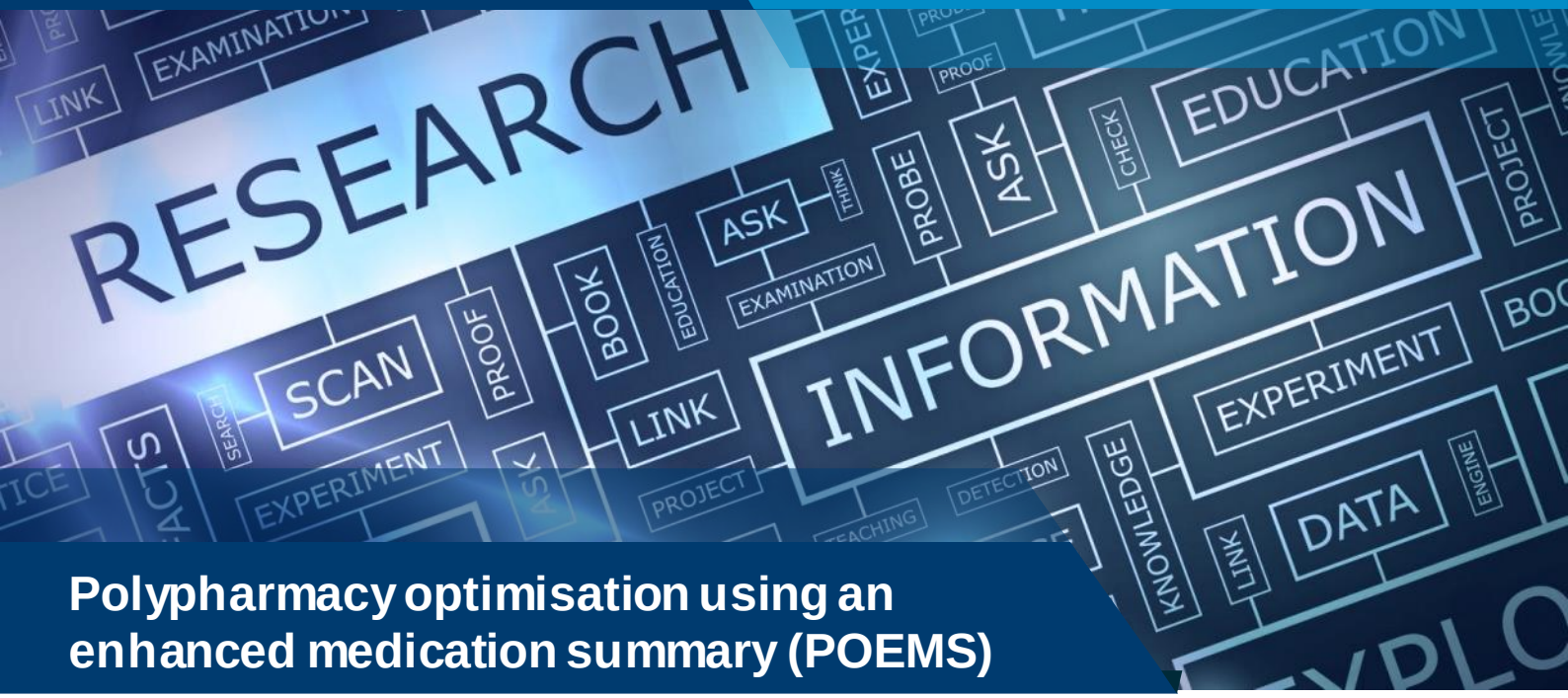
RESEARCH PROJECT BRIEFING



Polypharmacy optimisation using an enhanced medication summary (POEMS)

AIMS

The aims of this project were:

1. To develop an electronic tool (the 'enhanced medication summary') to support medication review in people taking multiple medicines (polypharmacy).
2. To evaluate implementation of the enhanced medication summary in Ayrshire and Arran.

KEY FINDINGS

- We successfully developed the enhanced medication summary (EMS) and implemented it in NHS Ayrshire and Arran primary care information systems.
- We had originally planned to use the EMS in the context of GP-led polypharmacy reviews, but this was derailed by the unexpected changes to the GP contract in April 2016. We therefore implemented it to support pharmacist-led polypharmacy review.
- In-depth interviews with primary care pharmacists showed that the EMS was valued because it made review more efficient, and because it supported more structured review of a complex and vulnerable set of patients.
- Pharmacist-led polypharmacy review was targeted at people aged 75 years and over taking 10 or more regular medicines. We therefore examined changes over time in prescribing quality and safety in this group. There were statistically significant reductions associated with EMS implementation in missed monitoring of treatment, in under-treatment, and in treatment despite abnormal monitoring. There was no associated change in high-risk prescribing but there were some increases in over-treatment.
- Observed changes were relatively small which reflected that the fewer people than expected received a polypharmacy review (there were fewer medication reviews in 2017/18 than in 2015/16 before GP contract changes).
- The intervention is promising and we will evaluate it more formally in a large-scale National Institute for Health Research funded cluster randomised trial in NHS England.

WHAT DID THE STUDY INVOLVE?

The study involved working with NHS Ayrshire and Arran to design a new IT tool (the enhanced medication summary or EMS) to support review of older people taking large numbers of regular medications. The EMS takes data from many different places in the GP record and brings it together in one place to simplify review, and additionally highlights which of ~120 prescribing indicators a patient triggers. The original study design was a randomised controlled trial where half the practices would use the summary and half would not. Unfortunately for the project, QOF was abolished in April 2016 before the trial started. The final design was therefore a health board-wide implementation of the EMS for use by pharmacists during polypharmacy review. The study had a steering group with public representatives. We did in-depth interviews with pharmacists and other professionals to understand their experience of using the EMS. We evaluated impact on prescribing by examining changes over time in a set of prescribing indicators examining high-risk prescribing, monitoring, treatment despite abnormal monitoring, over-treatment and under-treatment. Analysis used interrupted time series analysis to estimate change in prescribing 56 weeks after EMS implementation compared to expected levels based on trends before implementation.

WHAT WERE THE RESULTS?

Interviews with pharmacists and other professionals found that pharmacists were regularly using the EMS during polypharmacy review. They valued it because it made reviews more efficient by reducing the time to review the patient record, and helped ensure that reviews were systematic which was important given the complexity of prescribing. They made a number of suggestions for improvement, including simplifying the process for accessing the EMS. However, pharmacists also told us that they only had limited time to do polypharmacy reviews because of other demands on their time. This is consistent with only a minority of the target population (people aged 75 years and over taking 10 or more regular medicines) having a pharmacist review in the year after EMS implementation.

Before EMS implementation, ~185 out of every 1000 over 75s were taking 10 or more regular medicines and this was not changing over time. After implementation, there was a change to a falling trend (figure 1), and 56 weeks after implementation 24 fewer patients per 1000 were taking 10 or more regular medicines. There were statistically significant changes in prescribing indicators 56 weeks after implementation (figure 2):

- 33 fewer patients per 1000 had missed recommended monitoring (eg blood tests)
- 3 fewer patients per 1000 had treatment despite abnormal monitoring
- 19 fewer patients per 1000 had evidence of under-treatment
- 32 more patients per 1000 had evidence of over-treatment (the reverse of intended)
- There was no evidence of change in high-risk prescribing associated with EMS implementation (although high-risk prescribing fell continually from 2016 onwards)

Figure 1: Percentage of over-75s taking 10 or more repeat medications:

- **Flat trend before EMS implementation**
- **Change to a falling trend after implementation**
- **56 weeks after implementation, there were an estimated 24 fewer over-75s per 1000 taking 10 or more medicines**

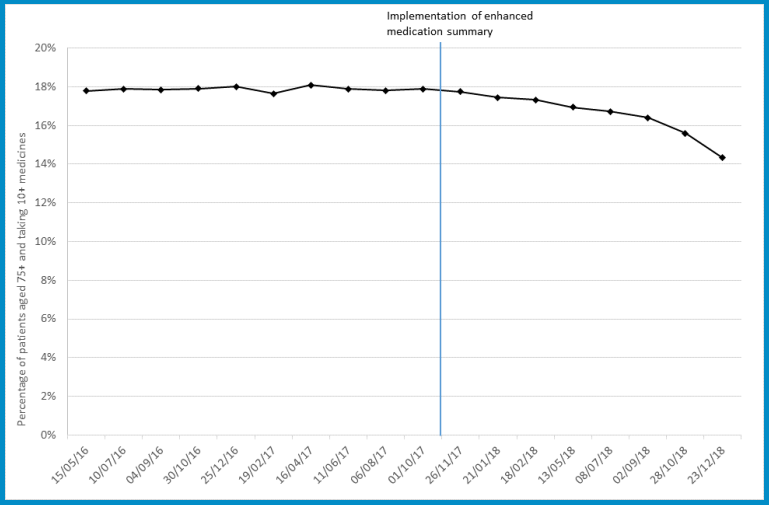
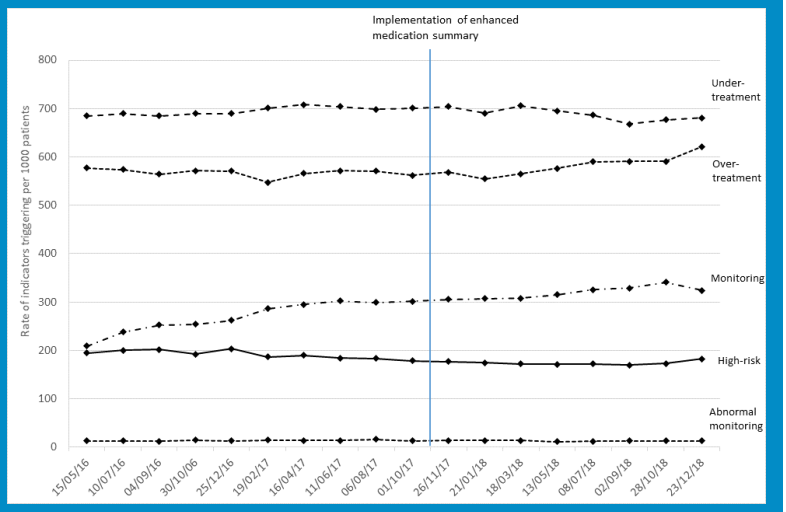


Figure 2: Changes in prescribing indicators compared to previous trends

- **Small but statistically significant *reductions* in missed monitoring, under-treatment and treatment despite abnormal monitoring**
- **No change in high-risk prescribing**
- **Small but statistically significant *increases* in over-treatment**



WHAT DO THE RESULTS MEAN?

Pharmacists liked and used the enhanced medication summary. However, because of limited pharmacist time, only a small minority of the target population of people aged 75 years and over and taking 10 or more regular medicines actually had a medication review by a pharmacist. Despite this, there was evidence of improvements in prescribing (better monitoring, less treatment in the presence of abnormal monitoring, less under-treatment) although also of changes in the opposite direction (more over-treatment).

WHAT IMPACT COULD THE FINDINGS HAVE?

- This study provides some evidence that implementation of an enhanced medication summary to support polypharmacy review has benefits in terms of reductions in the number of medicines taken and in terms of prescribing quality and safety.
- The improvements observed in the whole target population were small, but this likely reflects that relatively few eligible people had a pharmacist-led polypharmacy review. Delivering these reviews to everyone who might benefit is a major challenge for the NHS.

HOW WILL THE OUTCOMES BE DISSEMINATED?

We will publish an academic paper with the full findings, but there are two key means of dissemination and further work.

1. The Scottish Improvement Science Collaborating Centre has developed a newer version of the EMS which is better integrated with the GP record and easier to access. This has been implemented in all practices in NHS Tayside and can be implemented in other health boards if evaluation shows that it is effective.
2. A randomised controlled trial is required to definitely evaluate effectiveness and value for money. There is too much NHS polypharmacy improvement activity in Scotland to make a trial easy to run. We have therefore partnered with colleagues in the Universities of Bristol and Keele to develop an English version of this intervention which is being evaluated in a cluster randomised controlled trial in NHS England (National Institute for Health Research grant 16/118/14).

CONCLUSION

Despite the original study being derailed by unexpected changes to the GP contract, we have shown that it is possible to implement an enhanced medication summary which is valued by clinicians and which is associated with improvements in several prescribing indicators. We are rigorously evaluating it in a large study in England which is ongoing.

RESEARCH TEAM & CONTACT

Bruce Guthrie

Centre for Population Health Sciences, University of Edinburgh, Doorway 3, Old Medical School, Teviot Place, Edinburgh EH8 9AG

bruce.guthrie@ed.ac.uk

+44 (0)131 650 9498

Additional Information

The project finished on 28/02/19. Total funding was £224,992.